

# MEDIA RELEASE



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Environmental Biotechnology CRC Pty Limited  
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## A weapon in the war against algal blooms

### **QLD scientists help prevent algal blooms using Biotechnology to achieve environmentally friendly nutrient removal from wastewater.**

Researchers from the Environmental Biotechnology CRC (EBCRC) based at the University of QLD have today announced that they have successfully developed a technology to remove high levels of nitrogen and phosphorus from wastewaters using advanced biotechnology.

This is the first time such high concentrations have been successfully and reliably removed without the use of chemicals. Environmental Biotechnology has enabled the understanding of natural bacterial processes to increase the efficiency and effectiveness of nutrient removal.

Prof. Linda Blackall, EBCRC's Research Director, explains that high nutrient concentration wastewater from agricultural sources – particularly the meat processing industry – has up to 10 times higher concentration of nutrients such as organic carbon, nitrogen and phosphorus than domestic wastewater.

“Reliable biological removal systems for organic carbon and nitrogen had been successfully applied to wastewater treatment. However, phosphorus removal continues to be achieved primarily through chemical precipitation, despite biological removal being a cheaper and more environmentally sustainable option. The reliable biological phosphorus removal is the focus of the EBCRC research”, she said.

“If the nutrients are not removed from high nutrient containing wastewater but released into the environment, eutrophication will occur in river systems causing toxic algal blooms. There can also be detrimental effects in coastal waters and reef systems.”

The EBCRC project, based at the University of Queensland, aims to develop a biological process that achieves high levels of nutrient removal from agricultural sourced wastewaters, producing effluent suitable for the discharge to river systems. The team will improve current processing techniques and optimise the biological removal of phosphorus. Prof. Blackall explains that there are two key parts to this project:

“Through biotechnology, we are looking to fully understand the microbial transformations taking place in the wastewater treatment process. We can then provide the optimal conditions for the phosphorus-removing bacteria within the microbial community. Secondly, we are developing online control systems that will check flow and composition of wastewater, and automatically modify the treatment process to cope with fluctuations.”

The EBCRC does collaborative research in environmental biotechnology with the Universities of New South Wales, Queensland, Macquarie and Murdoch, and the South Australian Research and Development Institute. This project is supported by industry members: the Australian Meat Processor Corporation with Meat & Livestock Australia, and Ecowise Australia Pty Ltd.

The EBCRC is sponsoring a specialist technical conference on Microbial Population Dynamics in Biological Wastewater Treatment, organised by the International Water Association (IWA).

This is the fourth international Conference of this kind and more than 200 people are expected, providing a forum for the exchange of information, ideas and knowledge between engineers, chemists, microbiologists, biochemists and plant operators involved in biological wastewater treatment systems.

**Photos of work in progress and a fact sheet are available from: Michaela Lauren, phone: +61 2 9209 4970**

**For interview: Prof. Linda Blackall, phone 07 3365 4645, 0407 038 239**

**The 4<sup>th</sup> International Water Association Specialist Conference will be held at the Watermark Hotel in Surfers Paradise on 17-20 July 2005. ([www.iwahq.org.uk](http://www.iwahq.org.uk))**